What is claimed:

1. A method for transferring a target material from its starting condition in a solid form, through a vapor state, and depositing the material in a solid state on a substrate, the method comprising the steps of :

(a) vaporizing the target starting material by means of irradiating the material with an intense, monochromatic light source where the light of a wavelength resonant with a vibrational mode of the starting material, as determined from the infrared absorption spectrum of the starting material, and

(b) depositing the vaporized material on the substrate in the form of a solid coating.

2. The method of claim 1 wherein the material is selected from the group consisting of polymeric, organic, inorganic and biological materials and mixtures thereof.

3. The method of claim 1 where the material is any organic, inorganic or biological material or combinations of materials.

4. The method of claim 2 wherein the vibrational mode is in the infrared region.

5. The method of claim 2 wherein thickness of the coating on the substrate is from a single molecule to microns.

6. The method of claim 2 wherein thickness of the coating on the substrate is in the approximate range of 10 angstroms to 1 micron.

7. The method of claim 5 wherein the vibrational mode is in the infrared region of 1-15 microns.

8. The method of claim 5 wherein the vibrational mode is in the infrared region of 2-10 microns.

9. The method of claim 7 wherein the light is issued by a tunable pulsed laser and deposition rate of the material on the substrate is in the approximate range of 1 to 300 ng/cm^2.

10. The method of claim 8 including the steps of subjecting the target and the substrate to an environment of subatmospheric, atmosphereic and above atmospheric pressure and locating the target and the substrate in the vicinity of each other so that the vaporized material from the target can be deposited on the substrate by free fall; and the temperature of the substrate is such that the vaporized material settles on the substrate and becomes solid.

11. The method of claim 9 wherein the subatmospheric pressure is on the order of 4×10^{-8} Torr and the substrate can be any solid material, of any shape and any size.

12. A method for transferring a material onto a substrate comprising the steps of:

(a) directing light of a wavelength resonant with a vibrational mode at a target starting material, the resonant wavelength being determined from absorption spectrum of the starting material;

(b) vaporizing the target polymeric material, and

(c) depositing the vaporized material on the substrate in solid form that is essentially same chemically as the starting polymeric material.

13. The method of claim 11 wherein the material is selected from the group consisting of polymeric, organic, inorganic and biological materials and mixtures thereof.

14. The method of claim 12 wherein the vibrational mode is in the range of 3 to 10000 cm^{-1}.

15. The method of claim 12 wherein thickness of the coating on the substrate is from molecular to microns.

16. The method of claim 12 wherein thickness of the coating on the substrate is in the approximate range of 10 angstroms to 1 micron.

17. The method of claim 15 wherein the vibrational mode is in the infrared region of 1-15 microns.

18. The method of claim 15 wherein the vibrational mode is in the infrared region of 2-10 microns.

19. The method of claim 17 wherein the light is issued by a tunable pulsed laser and deposition rate of the material on the substrate is in the approximate range of 1 to 300 ng/cm^2/macropulse.

20. The method of claim 18 including the steps of subjecting the target and the substrate to an environment of subatmospheric, atmospheric and above atmospheric pressure and locating the target and the substrate in the vicinity of each other so that the vaporized material from the target can be deposited on the substrate by free fall; and the temperature of the substrate is such that the vaporized material settles on the substrate and becomes solid.

21. The method of claim 19 wherein the subatmospheric pressure is on the order of 4×10^{-8} Torr and the substrate is any solid material with planar a planar or non-planar surface

22. The method of claim 11 wherein the light is provided by a laser source delivering a stream of pulses of short 100 fs to 5 ps duration at pulse repetition frequencies ranging from 1 MHz to 3 GHz

23. The method of claim 21 wherein the laser source delivers the pulse train in a burst of a micropulse mode lasting microseconds to milliseconds.

24. The method of claim 21 wherein the laser source delivers the pulse train on a continuous basis.

25. The method of claim 21 where the laser delivers a pulse from nanoseconds to macroseconds at frequencies of up tp 10 kHz.

26. The method of claim 1 where the laser is operating in a continuous wave mode.